



Summary of Vaccine Preventable Diseases Reported to the Michigan Department of Community Health, 1998

This report summarizes reported cases of selected vaccine-preventable diseases in Michigan in 1998. Features of the descriptive epidemiology of the diseases are provided. Report totals are given in Table 1, below.

Congenital Rubella - No cases of congenital rubella were reported in 1998.

Diphtheria - No cases of diphtheria were reported in 1998 (last Michigan case reported in 1980).

***Haemophilus influenzae* invasive disease** - Thirteen cases of *H. influenzae* invasive disease were reported in 1998, a 13% decrease from the 15 cases reported in 1997. Of the thirteen cases, three were under age five (a four-year-old male, a six-month-old female and a 16-day-old female) and the remainder were adults (age range 34 - 87 years). Four were reported as serotype b, including two of the children. The remaining cases were of unknown serotype. The four-year-old male was a probable case; cultures yielded no growth but an antigen screen on CSF was positive. This child had received a full 4-dose series of Hib immunizations. Both of the other children were unimmunized (**note**: the 16 day-old was too young to receive Hib immunization, but the 6 month-old should have received 3 Hib vaccine doses by 6 months of age).

Measles - A total of 10 measles cases were reported in 1998 (compared with 2 in 1997), nine of which were related to a common outbreak. The outbreak centered on an infant group within a pre-school/day-care facility in the metropolitan Detroit area in late May, ultimately involving residents of three counties and persisting for three generations of cases. Two cases were hospitalized. The index case was an unimmunized 11-month-old male. Active surveillance and case-finding efforts identified five additional infants (age range five - 13 months) with onset of rash within a six-day period of the index case onset; five of these had onset within a three-day period, suggesting the presence of, and their exposure to, a contagious individual at the day care infant group sometime between April 29 and May 7. However, a source case was not identified.

Three secondary-spread cases were identified, each among adult contacts to infant cases, including two parents and one pediatrician. Each of the adults claimed to have been immunized against measles but were unable to produce accepted documentation of immunity (prior physician-diagnosed measles, laboratory evidence of immunity, date-specific documentation of adequate vaccination) and none were born prior to 1957.

Overall, laboratory confirmation was obtained for eight of the nine cases; viral growth was unsuccessful on specimens obtained from two cases for virologic and molecular epidemiologic studies.

Mumps - A total of 33 cases of mumps were reported in 1998 (28 were reported in 1997). Five (15%) were laboratory confirmed (2 by paired IgG serology and 3 by IgM serology) and a sixth met the confirmed case classification criteria on the basis of epidemiological linkage to a lab-confirmed case. There were no outbreaks identified.

Cases ranged in age from 1 to 37 years, with a median age of 8 years; 28 (85%) were under 20 years of age. Of the 28 cases under age 20 years, 24 (86%) had documentation of 1 or more doses of mumps vaccine on or after their 1st birthday (10 had one dose, 13 had two doses, 1 had three doses); immunization information was not available for six cases. Immunization history was unavailable for the 5 cases over 20 years of age (all were in their 30's). There were equal numbers of female and male cases (17 cases each gender).

Note: The need continues for improved mumps surveillance by routinely including efforts to obtain laboratory confirmation. There is some evidence that mumps surveillance in Michigan is somewhat non-specific and possibly over-estimates the true incidence. In 1998, 11 instances of clinically-diagnosed mumps were subsequently ruled out by serologic tests (and this number only reflects those cases where state-based epidemiologic efforts were included in the investigative follow-up; similar discarded (ruled-out) dispositions of reported cases may have occurred at the local public health level).

Pertussis - Seventy-one cases of pertussis were reported in 1998 (the same number reported in 1997) from 24 local health jurisdictions. Five jurisdictions reported five or more cases. No outbreaks were identified; there were two family related clusters of cases, one consisting of three cases and one consisting of four cases, as well as a small cluster of four cases in an Amish community. There was a preponderance of cases among females (female-to-male ratio = 1.37:1).

Culture-positive laboratory confirmation was obtained for 36 (51%).

Cases ranged in age from 13 days to 38 years, with a median age of 10 months. Approximately 75% of cases were under the age of five years.

Information on immunization history was available for 67 (94%) of the 71 cases. Of these, 39 (55%) were immunized with the appropriate number of pertussis vaccine doses for their age. Levels of age-appropriate number of vaccine doses were highest for those under one-year-old (31 of 39, or 79%) and lowest for one-to four-year-olds (two of 14, or 14%).

Overall, 33 (47%) cases were hospitalized, with hospitalization rates highest for under-12-month-olds (77%). Pneumonia (confirmed by chest x-ray) was reported for 4 (6%) cases; all were under one year of age. Seizure-related complications were reported for two cases. There were no reports of acute encephalopathy, and there were no reported deaths.

Rubella - A single case of rubella was reported in 1998. The case (confirmed by IgM serologic testing) was a 16 year-old female who had received two doses of MMR vaccine (at ages two years and 12 years). No source was identified.

Tetanus - Two cases of tetanus were reported. The first was a 34 year-old male who experienced a localized tetanus infection following an occupationally-related puncture to a finger from a carpet tack. He was hospitalized for six days and recovered uneventfully. He estimated he had last received a tetanus toxoid immunization 10-11 years prior, but was unable to furnish documentation. The second case was a 40 year-old male who experienced a localized infection subsequent to a laceration of his leg caused by a rusty piece of hardware. Although the case was not definitely determined to be tetanus, the case was treated with tetanus immune globulin; he did not require hospitalization and recovered without further complications.

Table 1 - Number of reported cases of vaccine preventable diseases, Michigan, 1998 and 1997

Disease	Total Cases 1998	Total Cases 1997	Cases < 5 y.o. 1998	Cases < 5 y.o. 1997
Congenital Rubella	0	0	0	0
Diphtheria	0	0	0	0
<i>H. influenzae</i> invasive	13	15	2	4
Hepatitis B	477	458	21	15
Measles	10	2	7	0
Mumps	33	28	9	6
Pertussis	71	71	53	56
Poliomyelitis	0	0	0	0
Rubella	1	0	0	0
Tetanus	2	0	0	0